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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 623 (2008): Bicycle - Bicycle frames ( Amalgamating SI  
3404: 1979) [TED 16: Bicycles]

“ज्ञान से एक नये भारत का निर्माण”

Satyanaaranay Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”





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साईकिल — साईकिल के फ्रेम — विशिष्टि  
( तीसरा पुनरीक्षण )

*Indian Standard*  
BICYCLE — BICYCLE FRAMES — SPECIFICATION  
( *Third Revision* )

ICS 43.150

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BUREAU OF INDIAN STANDARDS  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

## FOREWORD

This Indian Standard (Third Revision) was adopted by Bureau of Indian Standards, after the draft finalized by the Bicycles Sectional Committee had been approved by the Transport Engineering Division Council.

This standard was originally issued in 1955 and was subsequently revised in 1963 and 1993. Earlier requirements of ladies bicycle frames were separately covered in IS 3404. Based on experience gained in the manufacture of bicycle frames the revision of this standard has been taken up amalgamating both the standards covering the requirements of all types of frames. With the publication of this standard IS 3404 : 1979 'Specification for ladies bicycle frames (*first revision*)' will be withdrawn.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard***BICYCLE — BICYCLE FRAMES — SPECIFICATION**  
*( Third Revision )***1 SCOPE**

This standard specifies the material and dimensional and other requirements for frames suitable for being fitted in popular sizes of bicycles including ladies bicycles.

**2 REFERENCES**

The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

<i>IS No.</i>	<i>Title</i>
1131 : 2006	Bicycle bottom bracket axle — Specification ( <i>third revision</i> )
1132 : 1985	Specification for bicycle bottom bracket adjustable ball cup (PH type) ( <i>second revision</i> )
1133 : 1985	Specification for bicycle bottom bracket fixed ball cup (PH type) ( <i>second revision</i> )
1134 : 2004	Bicycles bottom bracket lock ring — Specification ( <i>third revision</i> )
2039 (Parts 1 to 3) : 1991	Steel tubes for bicycle and cycle rickshaws — Specification ( <i>second revision</i> )
2061 : 1995	Bicycle — Front forks — Specification ( <i>first revision</i> )
10613 : 2004	Cycles — Safety requirements for bicycles ( <i>first revision</i> )
14329 : 1995	Malleable iron castings

**3 MATERIAL****3.1 Frame Tubes**

Cold drawn seamless, or electrically resistance butt welded conforming to IS 2039 (Parts 1 to 3).

**3.2 Liners**

Mild steel with sulphur and phosphorus content, each not exceeding 0.060 percent.

**3.3 Lugs**

Mild steel with sulphur and phosphorus content, each not exceeding 0.060 percent; or whiteheart malleable iron casting conforming to Grade WM350 of IS 14329.

**4 DIMENSIONS****4.1 Frame Tubes**

The frame shall conform to the dimensions specified in Fig. 1, Fig. 2 or Fig. 3. The dimensions of the tubes specified in Fig. 1 shall comply with those given in IS 2039 (Parts 1 to 3).

**4.2 Screw Threads**

The dimensions of screw threads on bottom brackets shell for fixed and adjuster cups shall conform to IS 1131, IS 1132, IS 1133 and IS 1134.

**5 MANUFACTURE**

The tubes shall be fitted squarely to their respective lugs. During brazing, the frame assembly shall be securely held to prevent the relative movement of its members. The tubes shall be so fitted as to be in one plane and the axis of the bottom bracket shall be perpendicular to the plane of the frame (*see 7.1*).

**6 FINISH**

The frame shall be free from rust, scale and oily substances. It shall be suitably pretreated and stove-enamelled, spray-painted or otherwise treated to give a good/glossy finish.

**7 TESTS****7.1 Trueness of Frame**

The frame shall be fixed on a suitable surface plate with bottom bracket perpendicular (*see Fig. 4*). The heights of the centre lines of the tubes and the chain and seat stays shall be measured from the surface plate. These heights shall not vary by more than  $\pm 1.5$  mm with respect to the horizontal plane passing through the centre of the bottom bracket.

**7.2 Impact Test on Frame-Fork Assembly**

For the purpose of load test, the frame shall be

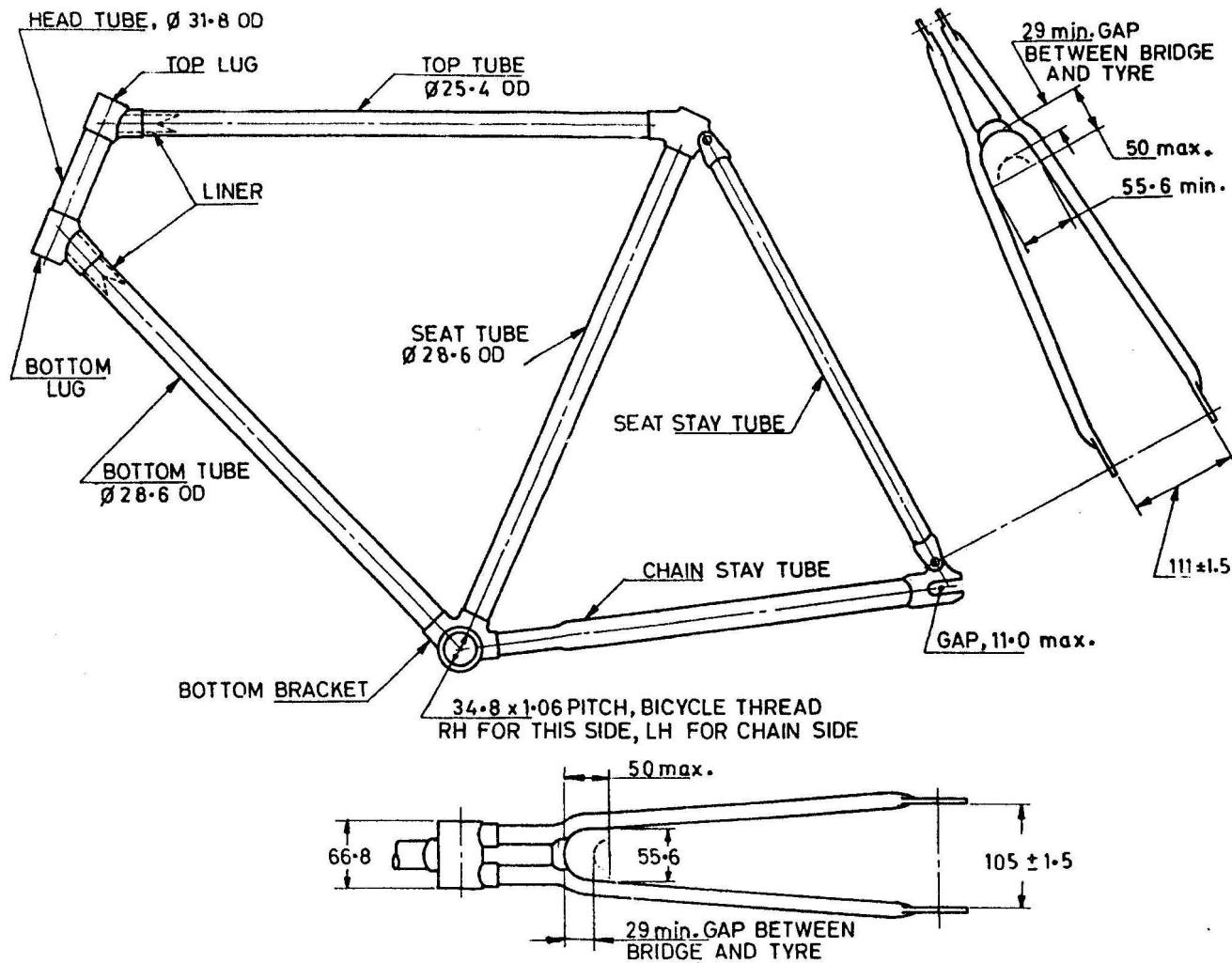


FIG. 1 BICYCLE FRAME (SCHEMATIC)

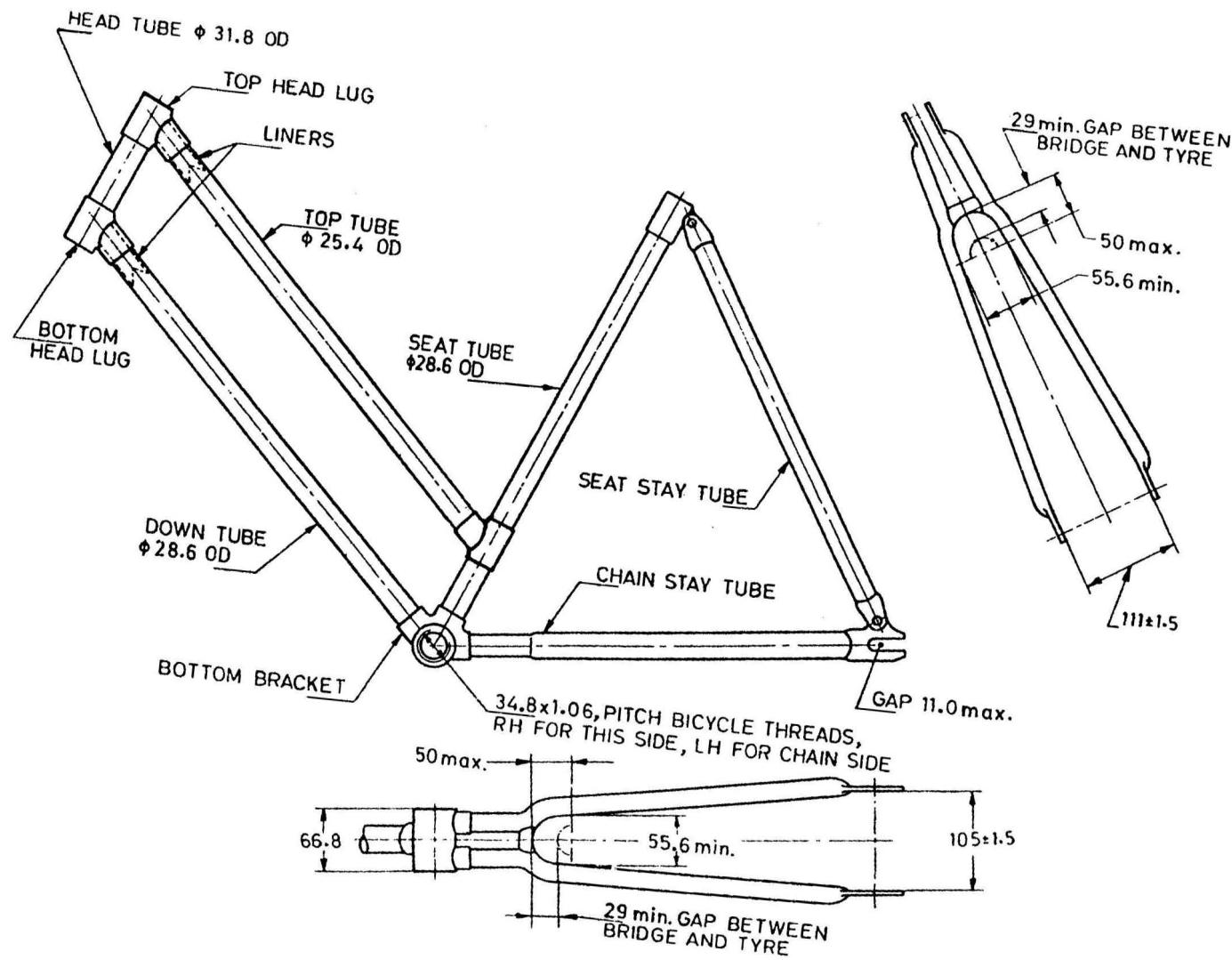


FIG. 2 LADIES BICYCLE PARALLEL BAR FRAME (SCHEMATIC)

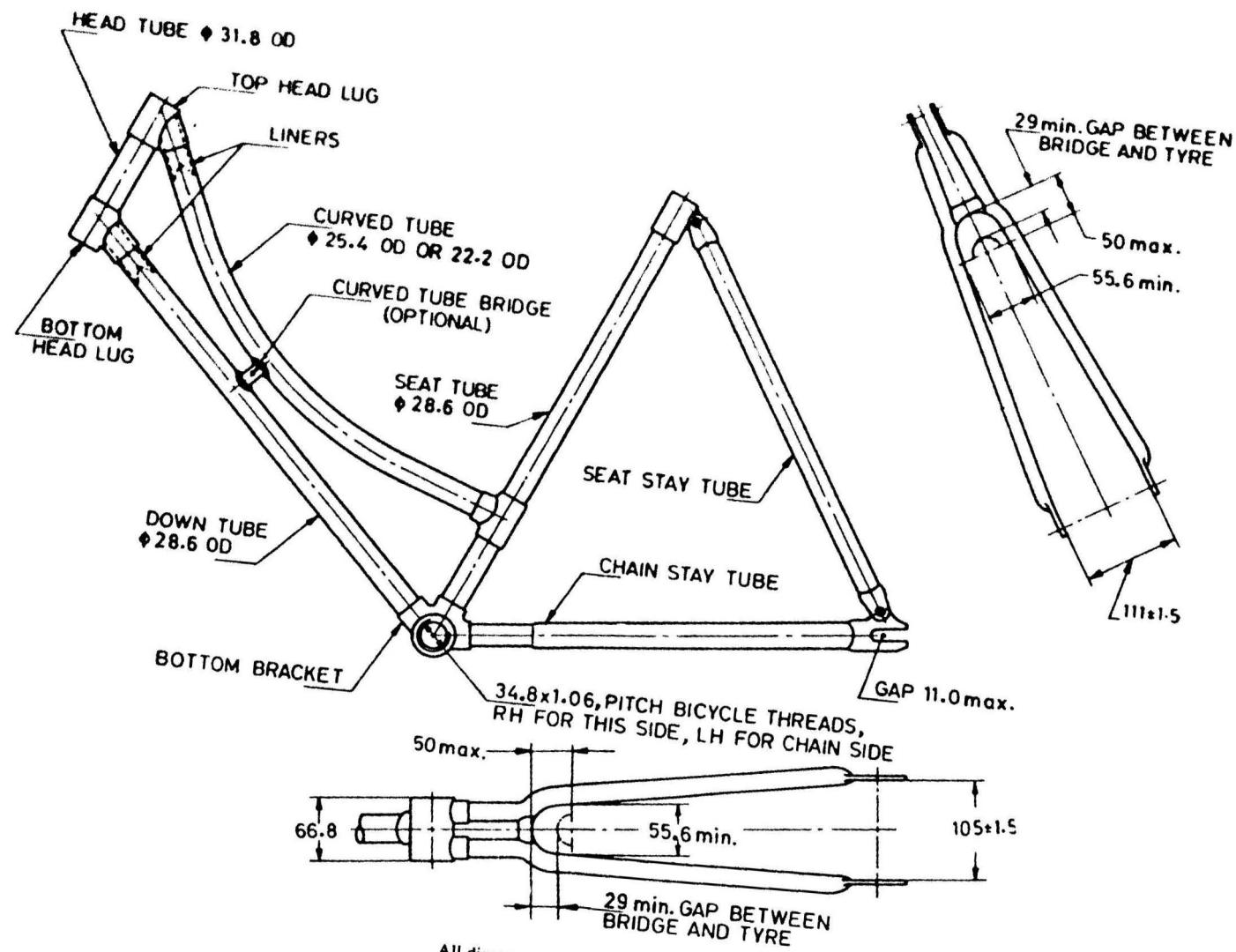


FIG. 3 LADIES BICYCLE CURVED BAR FRAME (SCHEMATIC)

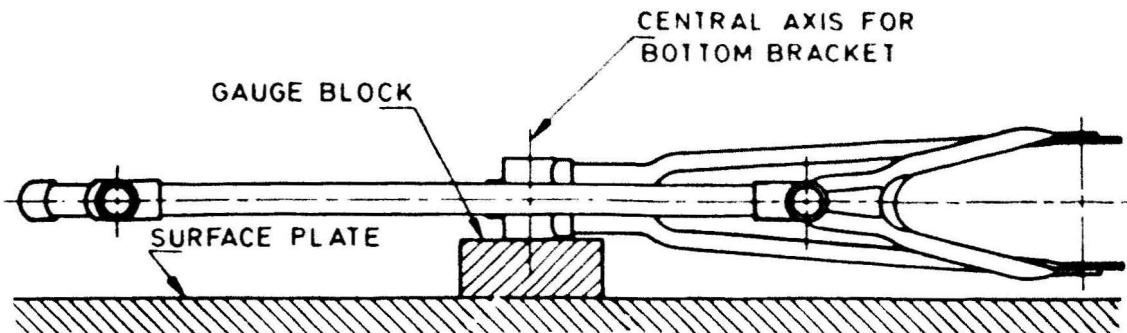


FIG. 4 TEST FOR TRUENESS OF BICYCLE FRAME

assembled with a fork of the same production lot and conforming to the test requirements of IS 2061.

#### 7.2.1 Impact Test (Falling Mass)

When tested by the method described in 4.6.1 of IS 10613 there shall be no visible evidence of fracture, and the permanent deformation of the assembly, measured between the centre lines of the axles, shall not exceed 40 mm after an impact of 39.5 J of energy.

#### 7.2.2 Impact Test (Falling Frame and Fork Assembly)

When tested by the method described in 4.6.2 of IS 10613 there shall be no visible evidence of fracture.

#### 7.3 Test for Finish

7.3.1 A solid steel ball measuring 13 mm in diameter shall be dropped from a height of 1.5 m on any painted portion of the frame. The paint at the place where the steel ball strikes the frame shall withstand the impact without showing any sign of tear or peeling off.

7.3.2 The frame shall be kept dipped for one hour in a

5 percent common salt solution at the temperatures specified below. The paint shall not soften, peel off or show any change in colour:

- a) Black enamel paint 80°C, and
- b) Other enamel paints 60°C.

#### 8 MARKING

Each frame shall be marked with the manufacturer's name, initials or trade-mark, and the country of origin. The manufacturer's serial number shall be stamped suitably.

#### 8.1 BIS Certification Marking

Frame may also be marked with the Standard Mark.

8.1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to the manufacturers or producers may be obtained from the Bureau of Indian Standards.

## ANNEX A

(Foreword)

## COMMITTEE COMPOSITION

Bicycles Sectional Committee, TED 16

<i>Organization</i>	<i>Representative(s)</i>
Bicycle & Sewing Machines (R&D Centre), Ludhiana	SHRI PARAMJEET SINGH ( <i>Chairman</i> ) SHRI R. S. BAINS ( <i>Alternate</i> )
All India Bicycle Manufacturers Association, New Delhi	MS REENA DAYAL
Atlas Cycles (Haryana) Limited, Sonepat	SHRI VIKRAM KAPUR SHRI GIRISH KAPUR ( <i>Alternate</i> )
Avon Cycles Ltd, Ludhiana	SHRI ONKAR SINGH PAHWA SHRI B. S. DHIMAN ( <i>Alternate</i> )
Avon Ispat & Power Limited (Rim Division), Ludhiana	SHRI HARCHARAN SINGH SHRI ASHWANI KUMAR BHAKHAN ( <i>Alternate</i> )
Bhogal Sons (Regd), Ludhiana	SHRI NAGINDER SINGH BHOGAL SHRI RATINDER SINGH BHOGAL ( <i>Alternate</i> )
Contollerate of Quality Assurance (Vehicles), Ahmednagar	SHRI A. J. PAWAR SHRI V. K. SINHA ( <i>Alternate</i> )
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Hero Cycles Ltd, Ludhiana	SHRI S. K. RAI SHRI Y. N. GUPTA ( <i>Alternate</i> )
J. K. Cycles, Ludhiana	SHRI JOGINDER KUMAR
Kular Cycle Industries, Ludhiana	SHRI AJIT SINGH SHRI DARSHAN SINGH ( <i>Alternate</i> )
Metro Tyres Limited, Ludhiana	SHRI L. K. MATHUR SHRI SANJEEV SOOD ( <i>Alternate</i> )
Nova Bicycle Industries, Ludhiana	SHRI HARMINDER SINGH PAHWA SHRI ROHIT PAHWA ( <i>Alternate</i> )
Office of the Development Commissioner (SSI), New Delhi	SHRI R. L. GARG SHRI M. B. JAYA KUMAR ( <i>Alternate</i> )
Ralson (India) Limited, Ludhiana	SHRI SANJEEV PAHWA SHRI T. R. KUKREJA ( <i>Alternate</i> )
Sadem Industries, Ludhiana	SHRI SATISH KUMAR DHANDA
Seth Industrial Corporation, Ludhiana	SHRI B. K. SETH
T. I. Cycles of India, Chennai	SHRI S. SADISH KUMAR SHRI V. DURAIRAJ ( <i>Alternate</i> )
United Cycle & Parts Manufacturers Association, Ludhiana	PRESIDENT SECRETARY ( <i>Alternate</i> )
BIS Directorate General	SHRI RAKESH KUMAR, Scientist 'F' and Head (TED) [Representing Director General ( <i>Ex-officio</i> )]

## Member Secretary

SHRI P. S. MUJRAL

Scientist 'E' (TED), BIS

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